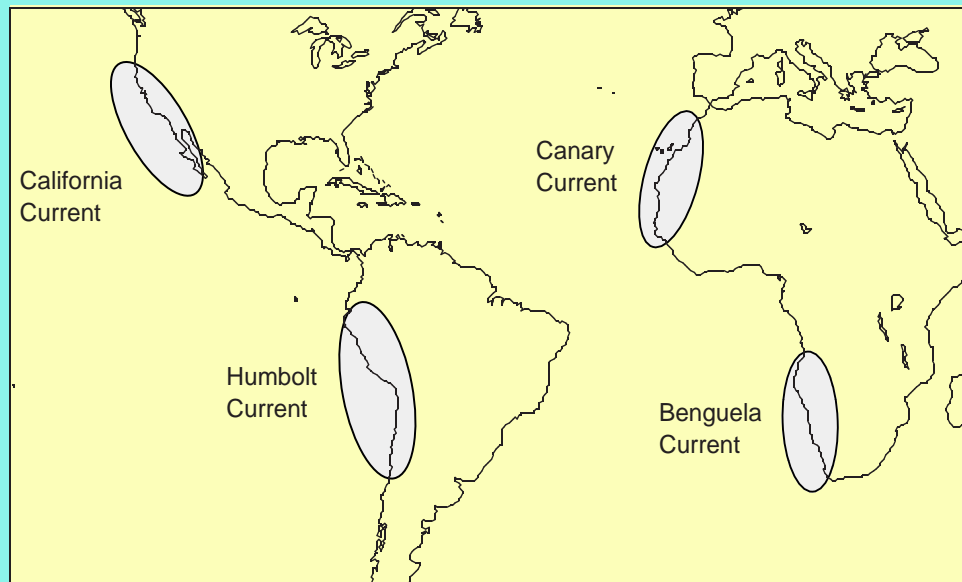


THE “CEOS” PROGRAM

Climate and Eastern Ocean Systems

The dynamics of marine resources and their exploitation in face of variability and changing climatic regimes

NOAA

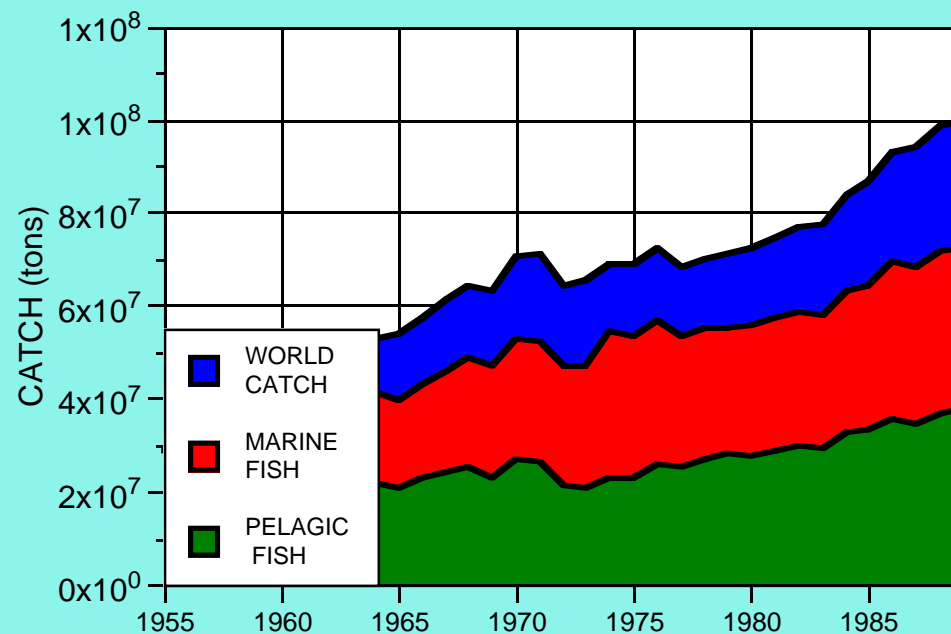


ORSTOM

ICLARM

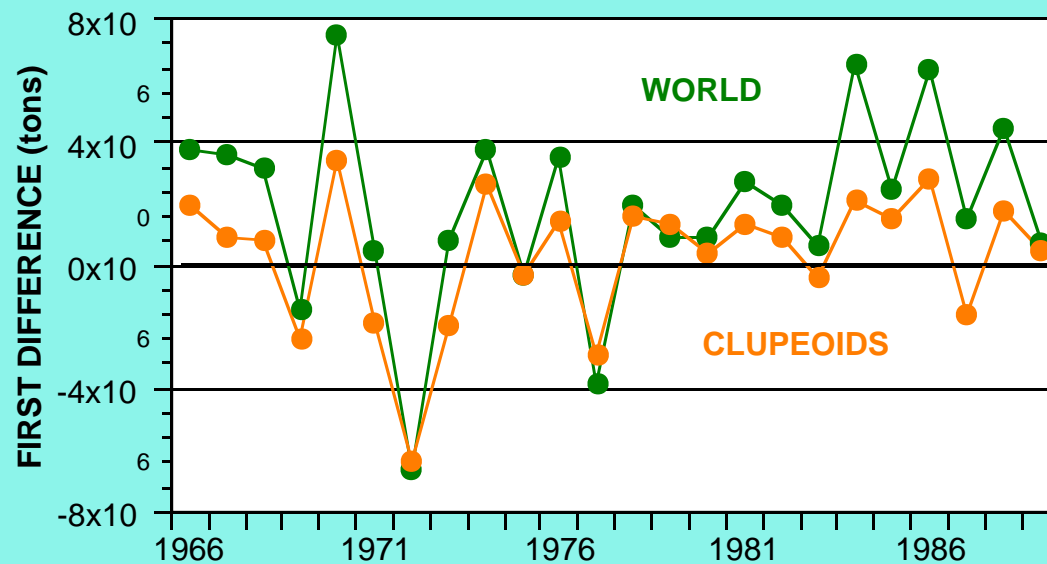
MARINE RESOURCES AND UPWELLING REGIONS

Almost 50% of the world's catch of fish are from upwelling regions.



VARIABILITY OF THE WORLD MARINE RESOURCES

The essential variability in the world fish catch is due to variability in coastal pelagic fish catches



METHODOLOGICAL APPROACH

We can't perform experiments at the ecosystem level;

Comparison and observation are as valid scientific research methods as experimentation;

Recognize the importance of the past history in ecosystem evolution.

- **COMPARATIVE APPROACH**

- Identify the emergent and contingent properties of ecosystems;

- **RETROSPECTIVE APPROACH**

- Study the past in order to identify patterns of variability and change and the responses of the ecosystems;

THE CEOS PROGRAM

- **A THEME**
 - Variability and change;
- **THE DOMAIN OF APPLICATION**
 - Eastern Boundary systems;
- **RESEARCH ACTIONS**
 - Global climate change and the dynamics of eastern boundary current systems;
 - Resource dynamics and environmental variability;
 - Resource exploitation and use in the face of uncertainty.

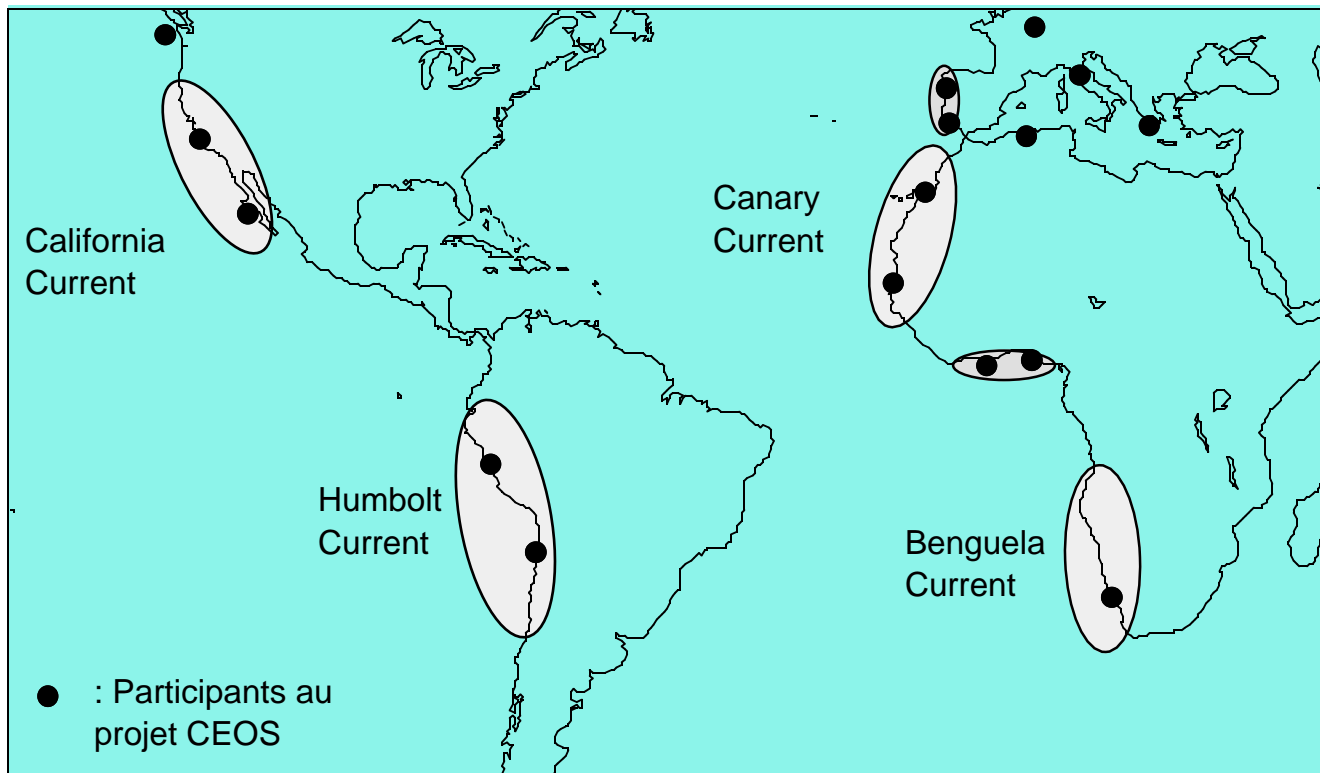
THE OBJECTIVES

- Assemble the historical datasets from the eastern boundary regions;
- Characterize the environmental and the resource fluctuations at different time and space scales;
- Identify the environmental processes that are likely to affect the dynamics of pelagic resources;
- Explore the relationships between global climatic fluctuations and local dynamics;
- Analyze the social and economic responses to resource variability;
- Construct exploratory scenarios of possible ecosystem responses in the face of climate change;
- Establish a network of researchers around the scientific themes of the CEOS Program.

The CEOS Databases

- **Fishery and biology** : FAO catch data, national catch and ecological data, oceanographic cruises, ...
- **Economic**: international markets, national statistics;
- **Environmental** : COADS data, meteorological stations, oceanographic data (MOODS 5, new release of COADS).

THE CEOS NETWORK



Over forty participants from more than 15 countries.

PURPOSE OF THE CEOS NETWORK

- **Open to all interested scientists in relevant disciplines;**
- **Develop local and regional scale studies in parallel with the large scale analyses initiated at PFEG;**
- **Develop comparative studies between regions and different types of ecosystems;**
- **Promote scientific exchanges (databases, methodologies, knowledge...);**
- **Coordinate and encourage research on the theme of global versus local changes in marine ecosystems (meetings, working groups...);**
- **Develop new research themes: spatial approaches (teleconnections, ...), renewable resources and biodiversity, long-term changes and resource exploitation.**

ACTIVITIES OF THE CEOS NETWORK since 1991

- Promotion of local and regional scale studies by organizing visits and working groups at PFEG;**
- Promotion of CEOS activities through participation at International conferences and through presentation of scientific results;**
- Promotion of publications, reports and talks from CEOS participants through inclusion into CEOS reports, lists of contributions and achievements;**
- Development of CEOS databases - microcomputer based allowing easy access and distribution.**

Some of the Planned Activities for 1995-1997

- **REINFORCE THE ACTIVITIES OF THE INTERNATIONAL NETWORK BY ORGANIZING WORKING GROUPS AND MEETINGS.**
- **EXPAND THE DATABASE EFFORT** (new releases of COADS, MOODS on CD-ROM, satellite data, ...).
- **DEVELOP AND APPLY NEW STATISTICAL METHODS TO HELP ANSWER THE QUESTIONS POSED BY CEOS.**
- **EXPAND MODELLING EFFORT UNDERWAY** : coupled biological-physical models, individual based models.
- **APPLY THE METHODOLOGY OF CEOS TO TUNA STUDIES.**
- **EXPLORE SPATIAL DYNAMICS USING SATELLITE DATA.**
- **Publication of the proceedings of the Symposium**
- **Prepare the 2nd International CEOS Symposium scheduled for**